

Amendment under 37 CFR 1.111
Serial No. 09/769,901
February 20, 2003

measuring a DC voltage; measuring voltage amounts in the generator; transforming the plurality of voltage amounts into the two phase reference system; calculating a flux in the generator; comparing the calculated flux magnitude with a desired flux; determining a d-axis voltage; determining a desired torque amount; comparing the desired torque amount with an estimated torque amount; determining a q-axis voltage; and transforming the d-axis voltage and the q-axis voltage to stationary reference frame n-phase voltages using the position of the flux. --

REMARKS

By this amendment, the abstract has been amended. Currently, claims 1-20 are pending in the application.

The Abstract was objected to because the Abstract was written on two pages instead of only on one page. By this Amendment, the Abstract has been rewritten to be 150 words as required. It is respectfully requested that the Examiner approve this new Abstract when acting on this amendment.

Claims 1-20 were rejected under the judicially created doctrine of double patenting over claims 1-20 of U.S. Patent No. 6,417,650. Submitted herewith is a "Terminal Disclaimer to

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Obviate a Double Patenting Rejection over a Prior Patent". It is respectfully submitted that this Terminal Disclaimer overcomes the double patenting rejection based on applicants' earlier patent.

Claims 1-3, 11, 13-14, 16 and 19 were rejected under 35 USC 103(a) as being obvious over Seibel et al. (U.S. Patent No. 6,014,007) in view of Heikkila (U.S. Patent No. 6,094,364). Further, claim 5 was rejected under 35 USC 103(a) as being obvious over Seibel et al. (U.S. Patent No. 6,014,007) and Heikkila as applied above and further in view of Seibel et al. (U.S. Patent No. 5,717,305). These rejections are respectfully traversed in view of the remarks presented in the previous amendment (which are incorporated herein by reference) and the remarks below.

In repeating these 35 USC 103(a) rejections, the Examiner responded to applicants' arguments by stating that

"the recitation induction generator has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does

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not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951)."

Applicants respectfully submit that the feature "induction generator" should be given patentable weight because it is not merely the purpose of the process as required by the cases cited by the Examiner.

Further, the "method of controlling steps" recited in the claims specifically depend on the recitation of the "induction generator" in the first line of independent claims 1, 6, 11 and 16, for completeness. This aspect of the induction generator limitation is also required by the cases cited by the Examiner.

For example, claim 1 includes the following recitations:

"1. A method of controlling an induction generator, said method comprising the steps of:

measuring a plurality of current amounts in the generator using a plurality of current sensors;

transforming the plurality of current amounts into a two phase reference system;

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measuring a DC voltage supplied to an inverter, the inverter being operatively connected to the generator ..."

In this claim, the phrase "measuring a plurality of current amounts in the generator using a plurality of current sensors" clearly ties the induction generator into the claim and therefore it should be considered as a meaningful limitation in the claim.

Likewise, the phrase "measuring a DC voltage supplied to an inverter, the inverter being operatively connected to the generator" also clearly ties the induction generator into the claims and therefore it should be considered a meaningful limitation in the claim.

Further, applicants have argued the distinctions over the prior art based on this limitation and so applicants respectfully request the Examiner to consider the induction generator as a necessary element of these method claims.

If the Examiner believes that applicants should amend the claims to recite "the induction generator", throughout the body of the claims, applicants would consent to making such an amendment and they would also consider other amendments that achieve this purpose.

It is therefore respectfully submitted that the induction generator is a meaningful limitation since the method claims are

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directed to controlling this induction generator. It is also respectfully submitted that these prior art rejections have been overcome by the reasons presented above and in the previous response.

Therefore, applicants respectfully submit that the application is now in condition for allowance and an action to this effect is respectfully requested.

If there are any questions or concerns regarding this application, the Examiner is requested to telephone the undersigned at the telephone number listed below.

Respectfully submitted,



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Date: February 20, 2003

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Submitted herewith is a marked-up version of the specification and claims to show changes made in the foregoing Amendment.

IN THE ABSTRACT

Please substitute the paragraph on pages 27-28 which has been amended as follows:

-- A method of controlling an induction generator such as an automotive starter-alternator or a windmill is disclosed. The method comprises using a minimal number of current sensors and controlling at least one of a machine flux, an output voltage and generator torque, based on the stator or rotor flux magnitude and position. This method comprises [the steps of] measuring a plurality of current amounts [in the generator]; transforming [the plurality of current amounts] them into a two phase reference system; measuring a DC voltage [supplied to an inverter]; measuring [a plurality of] voltage amounts in the generator [using voltage sensors]; transforming the plurality of

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voltage amounts into the two phase reference system; calculating a flux in the generator [using the currents and the voltages obtained by said steps of transforming]; comparing the calculated flux magnitude with a desired flux [to determine a flux error amount]; determining a d-axis voltage [so as to reduce the flux error amount]; determining a desired torque amount [by obtaining a desired generator shaft torque amount and converting the desired generator shaft torque amount to the desired torque amount]; comparing the desired torque amount with an estimated torque amount [to determine a torque error amount]; determining a q-axis voltage [so as to reduce a torque error amount]; and transforming the d-axis voltage and the q-axis voltage to stationary reference frame n-phase voltages using the position of the flux [, wherein n is substantially equal to a number of generator phases]. --